What is claimed is:

1. A display device driving apparatus for automatically adjusting the optimum brightness under limited power consumption, comprising:

5   a data driver and a scan driver, wherein each pixel comprising:

a switch unit which has two input ends and an output end, the input ends connecting respectively to a data line and a scan line;

a storage unit which has one end connecting to a power supply line and another end connecting to the output end of the switch unit;

10   a driver unit which has one input end connecting to the juncture of the output end of the switch unit and an input end of the storage unit and another input end connecting to the power supply line; and

an organic light-emitting diode which has a cathode and an anode, the anode being connected to the power supply line through the

15   output end of the driver unit;

wherein the organic light-emitting diode element is connected to each other through a co-cathode connection line in a co-cathode fashion, the co-cathode connection line being connected to a resistor which has another end grounded.

20   2. The display device driving apparatus of claim 1, wherein the switch unit is a thin film transistor.

3. The display device driving apparatus of claim 1, wherein the driver unit is a thin film transistor.

4. The display device driving apparatus of claim 1, wherein

25   storage unit is a capacitor.

5. A method for driving a display device to automatically adjust the optimum brightness under limited power consumption with the display device consisting of a plurality of pixel devices, each pixel device having a driver unit to drive an organic light-emitting diode to emit light, the method comprising steps of:

interconnecting the organic light-emitting diode of each pixel in a co-cathode fashion through a co-cathode connection line;

connecting the co-cathode connection line to a resistor;

grounding other end of the resistor; and

connecting the anode of the organic light-emitting diode of each pixel to a power source line through the driver unit;

wherein total current (I_{total}) variations flowing out of the co-cathode connection line is used to generate different voltage drops across the resistor and adjust Vsd (voltage between the source electrode and the drain electrode) of the driver unit thereby to alter the ratio value of each gray scale brightness relative to image data value.